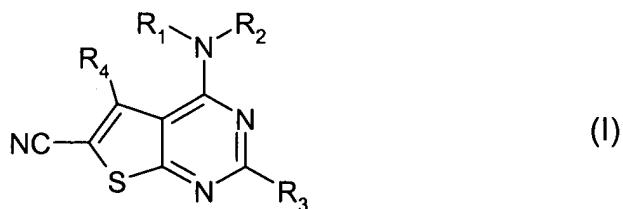


AMENDMENTS TO THE CLAIMS:

Please amend claims 2, 4, and 19. Deletions appear in ~~strikethrough~~ font, and additions are underlined. Please also cancel claim 18 without prejudice or disclaimer. This listing of claims will replace all prior versions and listings of claims in the application.

Complete listing of claims

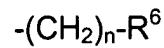
1) (Previously Presented) A compound of formula (I):



or a pharmaceutically acceptable salt thereof wherein

- R₁ and R₂ either
 - (a) independently represent :
 - (i) a hydrogen atom
 - (ii) a group chosen from alkyl, alkenyl and alkynyl groups, wherein each alkyl, alkenyl and alkynyl group is independently and optionally substituted by one or more substituents chosen from halogen atoms, hydroxy, alkoxy, aryloxy, alkylthio, hydroxycarbonyl, alkoxycarbonyl, mono- and di-alkylaminoacyl, oxo, amino, and mono- and di-alkylamino groups; or

(iii) a group of formula

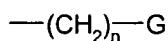


wherein n is an integer from 0 to 4 and R^6 represents a cycloalkyl or cycloalkenyl group;

or

(b) R_1 and R_2 form, together with the nitrogen atom to which they are attached, a 3- to 8-membered ring comprising from 1 to 4 heteroatoms chosen from nitrogen, oxygen and sulphur, which ring is saturated or unsaturated and optionally substituted by one or more substituents chosen from halogen atoms, alkyl, hydroxy, alkoxy, acyl, hydroxycarbonyl, alkoxycarbonyl, alkylenedioxy, amino, mono- and di-alkylamino, mono- and di-alkylaminoacyl, nitro, cyano and trifluoromethyl groups;

- R_3 is a group of formula



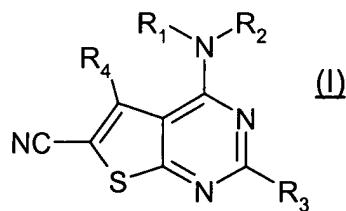
wherein n is an integer from 0 to 4 and G represents a monocyclic or bicyclic aryl or heteroaryl group comprising from zero to four heteroatoms which group is optionally substituted by one or more substituents chosen from:

- (i) halogen atoms;
- (ii) alkyl and alkylene groups, wherein each alkyl and alkylene group is independently optionally substituted by one or more substituents chosen from halogen atoms; and
- (iii) phenyl, hydroxy, hydroxyalkyl, alkoxy, alkylenedioxy, aryloxy, alkylthio, amino, mono- and di-alkylamino, acylamino, nitro, acyl, hydroxycarbonyl, alkoxycarbonyl, cyano, difluoromethoxy and trifluoromethoxy groups;

- R_4 represents an alkyl or an aryl group;

with the proviso that the compound of formula (I) is not 5-methyl-2-phenyl-4-morpholin-4-ylthieno[2,3-d]pyrimidine-6-carbonitrile.

2) (Currently Amended) A compound of formula (I): ~~according to claim 1,~~



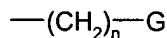
or a pharmaceutically acceptable salt thereof wherein R₁ and R₂ either:

a) independently represent hydrogen or a group chosen from an alkyl, alkenyl and alkynyl groups; wherein each alkyl, alkenyl and alkynyl group independently has from 1 to 4 carbon atoms and each is independently optionally substituted by one hydroxy group or a cycloalkyl group having from 3 to 6 carbon atoms;

or

b) R_1 and R_2 form, together with the nitrogen atom to which they are attached, a 4- to 6-membered ring having from 1 to 2 heteroatoms chosen from nitrogen, oxygen and sulphur, which ring is optionally substituted by one or two $C_1.C_4$ alkyl groups, wherein each $C_1.C_4$ alkyl group is independently unsubstituted or substituted by one hydroxy group;

- R_3 is a group of formula



wherein n is an integer from 0 to 4 and G represents a monocyclic or bicyclic aryl or heteroaryl group comprising from zero to four heteroatoms which group is optionally substituted by one or more substituents chosen from:

- (iii) halogen atoms;
- (iv) alkyl and alkylene groups, wherein each alkyl and alkylene group is independently optionally substituted by one or more substituents chosen from halogen atoms; and
- (iii) phenyl, hydroxy, hydroxyalkyl, alkoxy, alkylenedioxy, aryloxy, alkylthio,

amino, mono- and di-alkylamino, acylamino, nitro, acyl,
hydroxycarbonyl, alkoxycarbonyl, cyano, difluoromethoxy and
trifluoromethoxy groups;

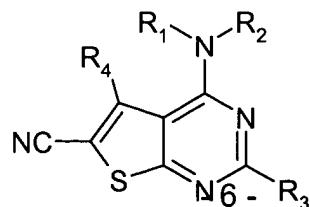
- R_4 represents an alkyl or an aryl group;

with the proviso that the compound of formula (I) is not 5-methyl-2-phenyl-4-morpholin-4-ylthieno[2,3-d]pyrimidine-6-carbonitrile.

3) (Previously Presented) A compound according to claim 1, wherein R_1 either:

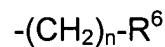
- a) represents a hydrogen atom or an alkyl group having from 1 to 4 carbon atoms
or
- b) forms together with R_2 and with the nitrogen atom to which they are attached, a 4- to 6-membered ring having from 1 to 2 heteroatoms chosen from nitrogen and oxygen, which ring is optionally substituted by one or more substituents chosen from halogen atoms, alkyl and acyl groups.

4) (Currently Amended) A compound of formula I:



or a pharmaceutically acceptable salt thereof wherein:

- R_1
 - (a) independently represents :
 - (iv) a hydrogen atom
 - (v) a group chosen from alkyl, alkenyl and alkynyl groups, wherein each alkyl, alkenyl and alkynyl group is independently and optionally substituted by one or more substituents chosen from halogen atoms, hydroxy, alkoxy, aryloxy, alkylthio, hydroxycarbonyl, alkoxycarbonyl, mono- and di-alkylaminoacyl, oxo, amino, and mono- and di-alkylamino groups; or
 - (vi) a group of formula



wherein n is an integer from 0 to 4 and R^6 represents a cycloalkyl or cycloalkenyl group;

R_2 either:

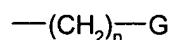
- a) represents a group chosen from alkyl, alkenyl, alkynyl, cycloalkyl, hydroxyalkyl and di-alkylamino groups;

or

- b) forms together with R_1 and with the nitrogen atom to which they are attached, a 4- to 6-membered ring comprising from 1 to 2 heteroatoms chosen from nitrogen and oxygen, which ring is optionally substituted by one or more substituents chosen from halogen atoms, alkyl and acyl groups,
- R_3 is a group of formula
$$—(CH_2)_n—G$$
wherein n is an integer from 0 to 4 and G represents a monocyclic or bicyclic aryl or heteroaryl group comprising from zero to four heteroatoms which group is optionally substituted by one or more substituents chosen from:
 - (v) halogen atoms;
 - (vi) alkyl and alkylene groups, wherein each alkyl and alkylene group is independently optionally substituted by one or more substituents chosen from halogen atoms; and
 - (iii) phenyl, hydroxy, hydroxyalkyl, alkoxy, alkylenedioxy, aryloxy, alkylthio, amino, mono- and di-alkylamino, acylamino, nitro, acyl, hydroxycarbonyl, alkoxycarbonyl, cyano, difluoromethoxy and trifluoromethoxy groups; and
- R_4 represents an alkyl or an aryl group;
with the proviso that the compound of formula (I) is not 5-methyl-2-phenyl-4-morpholin-4-ylthieno[2,3-d]pyrimidine-6-carbonitrile.

~~with the proviso that the compound of formula (I) is not 5-methyl-2-phenyl-4-morpholin-4-ylthieno[2,3-d]pyrimidine-6-carbonitrile.~~

5) (Previously Presented) A compound according to claim 1, wherein R₃ represents a group of formula



wherein n is an integer from 0 to 4 and G represents a monocyclic aryl or heteroaryl group comprising zero or one heteroatoms, which aryl or heteroaryl group is optionally substituted by one or more substituents chosen from:

- (i) halogen atoms; and
- (ii) unsubstituted C₁-C₈ alkyl, unsubstituted C₁-C₈ alkoxy, unsubstituted C₁-C₃ alkylenedioxy, nitro, trifluoromethyl and unsubstituted alkoxy carbonyl groups having a C₁-C₈ alkyl portion.

6) (Previously Presented) A compound according to claim 1, wherein R₄ is an unsubstituted C₁-C₈ alkyl or an unsubstituted C₅-C₁₄ aryl group.

7) (Previously Presented) A compound according to claim 6, wherein R₄ represents an unsubstituted C₁-C₄ alkyl group.

8) (Previously Presented) A compound according to claim 1, wherein R₃ represents a group chosen from phenyl, pyridyl and benzyl groups, wherein the phenyl, pyridyl and benzyl groups are optionally substituted by one or more substituents chosen from:

- (i) halogen atoms; and

(ii) unsubstituted C₁-C₈ alkyl, unsubstituted C₁-C₈ alkoxy, unsubstituted C₁-C₃ alkylenedioxy, nitro, trifluoromethyl and unsubstituted alkoxycarbonyl groups having a C₁-C₈ alkyl portion.

9) (Previously Presented) A compound according to claim 8, wherein R₃ represents a phenyl or benzyl group substituted by one, two or three C₁-C₆ alkoxy groups.

10) (Previously Presented) A compound according to claim 9 wherein R₁ represents a hydrogen atom and R₂ represents

(i) a group chosen from alkyl, alkenyl and alkynyl groups, wherein each alkyl, alkenyl and alkynyl group is independently optionally substituted by one or more substituents chosen from halogen atoms, hydroxy, alkoxy, aryloxy, alkylthio, hydroxycarbonyl, alkoxycarbonyl, mono- and di-alkylaminoacyl, oxo, amino, and mono- and di-alkylamino groups; or

(ii) a group of formula

$$-(\text{CH}_2)_n\text{R}^6$$

wherein n is an integer from 0 to 4 and R⁶ represents a cycloalkyl or cycloalkenyl group.

11) (Previously Presented) A compound according to claim 1 chosen from: 4-(4-Ethylpiperazin-1-yl)-5-methyl-2-phenylthieno[2,3-d]pyrimidine-6-carbonitrile

4-(4-Ethylpiperazin-1-yl)-2-(4-methoxyphenyl)-5-methylthieno[2,3-d]pyrimidine-6-carbonitrile

4-(Diethylamino)-5-methyl-2-phenylthieno[2,3-d]pyrimidine-6-carbonitrile

5-Methyl-2-phenyl-4-piperidin-1-ylthieno[2,3-d]pyrimidine-6-carbonitrile

5-Methyl-2-(4-nitrophenyl)-4-piperidin-1-ylthieno[2,3-d]pyrimidine-6-carbonitrile

2-(4-Methoxyphenyl)-5-methyl-4-piperidin-1-ylthieno[2,3-d]pyrimidine-6-carbonitrile

5-Methyl-4-(4-methylpiperazin-1-yl)-2-(4-nitrophenyl)thieno[2,3-d]pyrimidine-6-carbonitrile

5-Methyl-2-phenyl-4-piperazin-1-ylthieno[2,3-d]pyrimidine-6-carbonitrile

2-(4-Methoxyphenyl)-5-methyl-4-(4-methylpiperazin-1-yl)thieno[2,3-d]pyrimidine-6-carbonitrile

4-(Diethylamino)-2-(4-methoxyphenyl)-5-methylthieno[2,3-d]pyrimidine-6-carbonitrile

2-(4-Methoxyphenyl)-5-methyl-4-pyrrolidin-1-ylthieno[2,3-d]pyrimidine-6-carbonitrile

2-(4-Methoxyphenyl)-5-methyl-4-piperazin-1-ylthieno[2,3-d]pyrimidine-6-carbonitrile

5-Methyl-2-(4-nitrophenyl)-4-piperazin-1-ylthieno[2,3-d]pyrimidine-6-carbonitrile

4-(Dibutylamino)-2-(4-methoxyphenyl)-5-methylthieno[2,3-d]pyrimidine-6-carbonitrile

2-(4-Chlorophenyl)-5-methyl-4-(4-methylpiperazin-1-yl)thieno[2,3-d]pyrimidine-6-carbonitrile

2-(3,4-Dimethoxyphenyl)-5-methyl-4-(4-methylpiperazin-1-yl)thieno[2,3-d]pyrimidine-6-carbonitrile

4-[Ethyl(methyl)amino]-2-(4-methoxyphenyl)-5-methylthieno[2,3-d]pyrimidine-6-carbonitrile

4-(Diethylamino)-5-methyl-2-(4-nitrophenyl)thieno[2,3-d]pyrimidine-6-carbonitrile

2-(4-Chlorophenyl)-4-(diethylamino)-5-methylthieno[2,3-d]pyrimidine-6-carbonitrile

4-(Diethylamino)-2-(3,4-dimethoxyphenyl)-5-methylthieno[2,3-d]pyrimidine-6-carbonitrile

4-(Dimethylamino)-2-(4-methoxyphenyl)-5-methylthieno[2,3-d]pyrimidine-6-carbonitrile

2-(4-Methoxyphenyl)-5-methyl-4-morpholin-4-ylthieno[2,3-d]pyrimidine-6-carbonitrile

2-(4-Chlorophenyl)-5-methyl-4-morpholin-4-ylthieno[2,3-d]pyrimidine-6-carbonitrile

2-(4-Methoxyphenyl)-5-methyl-4-[methyl(prop-2-ynyl)amino]thieno[2,3-d]pyrimidine-6-carbonitrile

4-[(2-Hydroxyethyl)(methyl)amino]-2-(4-methoxyphenyl)-5-methylthieno[2,3-d]pyrimidine-6-carbonitrile

2-(3,4-Dimethoxyphenyl)-4-[ethyl(methyl)amino]-5-methylthieno[2,3-d]pyrimidine-6-carbonitrile

5-Methyl-2-(4-methylphenyl)-4-(4-methylpiperazin-1-yl)thieno[2,3-d]pyrimidine-6-carbonitrile

4-(Diethylamino)-5-methyl-2-[4-(trifluoromethyl)phenyl]thieno[2,3-d]pyrimidine-6-carbonitrile

4-[Allyl(methyl)amino]-2-(4-methoxyphenyl)-5-methylthieno[2,3-d]pyrimidine-6-carbonitrile

2-(3,4-Dimethoxyphenyl)-4-[(2-hydroxyethyl)(methyl)amino]-5-methylthieno[2,3-d]pyrimidine-6-carbonitrile

2-(3,4-Dimethoxyphenyl)-5-methyl-4-morpholin-4-ylthieno[2,3-d]pyrimidine-6-carbonitrile

5-Methyl-2-(4-methylphenyl)-4-morpholin-4-ylthieno[2,3-d]pyrimidine-6-carbonitrile

5-Methyl-4-(4-methylpiperazin-1-yl)-2-[4-(trifluoromethyl)phenyl]thieno[2,3-d]pyrimidine-6-carbonitrile

2-(1,3-Benzodioxol-5-yl)-5-methyl-4-(4-methylpiperazin-1-yl)thieno[2,3-d]pyrimidine-6-carbonitrile

4-(Diethylamino)-5-methyl-2-(4-methylphenyl)thieno[2,3-d]pyrimidine-6-carbonitrile

2-(1,3-Benzodioxol-5-yl)-4-(diethylamino)-5-methylthieno[2,3-d]pyrimidine-6-carbonitrile

2-(1,3-Benzodioxol-5-yl)-5-methyl-4-morpholin-4-ylthieno[2,3-d]pyrimidine-6-carbonitrile

4-[Ethyl(methyl)amino]-5-methyl-2-pyridin-4-ylthieno[2,3-d]pyrimidine-6-carbonitrile

4-[Ethyl(methyl)amino]-5-methyl-2-(3,4,5-trimethoxyphenyl)thieno[2,3-d]pyrimidine-6-carbonitrile

2-Benzyl-5-methyl-4-(4-methylpiperazin-1-yl)thieno[2,3-d]pyrimidine-6-carbonitrile

5-Methyl-4-morpholin-4-yl-2-pyridin-4-ylthieno[2,3-d]pyrimidine-6-carbonitrile

4-[(2-Hydroxyethyl)(methyl)amino]-5-methyl-2-pyridin-4-ylthieno[2,3-d]pyrimidine-6-carbonitrile

2-(1,3-Benzodioxol-5-yl)-4-[(2-hydroxyethyl)(methyl)amino]-5-methylthieno[2,3-d]pyrimidine-6-carbonitrile

4-[(2-Hydroxyethyl)(methyl)amino]-5-methyl-2-(4-methylphenyl)thieno[2,3-d]pyrimidine-6-carbonitrile

4-(Diethylamino)-5-methyl-2-pyridin-4-ylthieno[2,3-d]pyrimidine-6-carbonitrile

2-(3,4-Dimethoxyphenyl)-4-(dimethylamino)-5-methylthieno[2,3-d]pyrimidine-6-carbonitrile

2-(3,4-Dimethoxyphenyl)-5-methyl-4-(propylamino)thieno[2,3-d]pyrimidine-6-carbonitrile

4-(Diethylamino)-5-methyl-2-(3,4,5-trimethoxyphenyl)thieno[2,3-d]pyrimidine-6-carbonitrile

2-Benzyl-4-(diethylamino)-5-methylthieno[2,3-d]pyrimidine-6-carbonitrile

5-Methyl-4-(4-methylpiperazin-1-yl)-2-phenylthieno[2,3-d]pyrimidine-6-carbonitrile

5-Methyl-4-morpholin-4-yl-2-(3,4,5-trimethoxyphenyl)thieno[2,3-d]pyrimidine-6-carbonitrile

4-[(2-Hydroxyethyl)methylamino]-5-methyl-2-(3,4,5-trimethoxyphenyl)thieno[2,3-d]pyrimidine-6-carbonitrile

2-(3,5-Dimethoxyphenyl)-5-methyl-4-(4-methylpiperazin-1-yl)-thieno[2,3-d]pyrimidine-6-carbonitrile

4-Diethylamino-2-(3,5-dimethoxyphenyl)-5-methylthieno[2,3-d]pyrimidine-6-carbonitrile

2-(3,5-Dimethoxyphenyl)-4-(ethylmethylamino)-5-methylthieno[2,3-d]pyrimidine-6-carbonitrile

4-(6-Cyano-4-diethylamino-5-methylthieno[2,3-d]pyrimidin-2-yl)-benzoic acid methyl ester

4-[6-Cyano-4-(ethylmethylamino)-5-methylthieno[2,3-d]pyrimidin-2-yl]-benzoic acid methyl ester

2-Benzyl-5-methyl-4-morpholin-4-yl-thieno[2,3-d]pyrimidine-6-carbonitrile

2-Benzyl-4-[(2-hydroxyethyl)methylamino]-5-methylthieno[2,3-d]pyrimidine-6-carbonitrile

5-Methyl-4-(4-methylpiperazin-1-yl)-2-(3,4,5-trimethoxyphenyl)thieno[2,3-d]pyrimidine-6-carbonitrile

Methyl 4-(6-cyano-5-methyl-4-morpholin-4-ylthieno[2,3-d]pyrimidin-2-yl)benzoate

Methyl 4-[6-cyano-5-methyl-4-(4-methylpiperazin-1-yl)thieno[2,3-d]pyrimidin-2-yl]benzoate

Methyl 4-[6-cyano-4-(dimethylamino)-5-methylthieno[2,3-d]pyrimidin-2-yl] benzoate

Methyl 4-{6-cyano-4-[(2-hydroxyethyl)(methyl)amino]-5-methylthieno[2,3-d]pyrimidin-2-yl}benzoate

5-methyl-4-(methylamino)-2-(3,4,5-trimethoxyphenyl)thieno[2,3-d]pyrimidine-6-carbonitrile

4-(Dimethylamino)-5-methyl-2-(3,4,5-trimethoxyphenyl)thieno[2,3-d]pyrimidine-6-carbonitrile

4-(Ethylamino)-5-methyl-2-(3,4,5-trimethoxyphenyl)thieno[2,3-d]pyrimidine-6-carbonitrile

5-Methyl-4-(propylamino)-2-(3,4,5-trimethoxyphenyl)thieno[2,3-d]pyrimidine-6-carbonitrile

4-(Butylamino)-5-methyl-2-(3,4,5-trimethoxyphenyl)thieno[2,3-d]pyrimidine-6-carbonitrile

4-(Isopropylamino)-5-methyl-2-(3,4,5-trimethoxyphenyl)thieno[2,3-d]pyrimidine-6-carbonitrile

4-(sec-Butylamino)-5-methyl-2-(3,4,5-trimethoxyphenyl)thieno[2,3-d]pyrimidine-6-carbonitrile

4-(Isobutylamino)-5-methyl-2-(3,4,5-trimethoxyphenyl)thieno[2,3-d]pyrimidine-6-carbonitrile

4-[(1-Ethylpropyl)amino]-5-methyl-2-(3,4,5-trimethoxyphenyl)thieno[2,3-d]pyrimidine-6-carbonitrile

4-(tert-Butylamino)-5-methyl-2-(3,4,5-trimethoxyphenyl)thieno[2,3-d]pyrimidine-6-carbonitrile

4-(Cyclopropylamino)-5-methyl-2-(3,4,5-trimethoxyphenyl)thieno[2,3-d]pyrimidine-6-carbonitrile

4-(Cyclobutylamino)-5-methyl-2-(3,4,5-trimethoxyphenyl)thieno[2,3-d]pyrimidine-6-carbonitrile

4-(Cyclopentylamino)-5-methyl-2-(3,4,5-trimethoxyphenyl)thieno[2,3-d]pyrimidine-6-carbonitrile

4-[Allyl(methyl)amino]-5-methyl-2-(3,4,5-trimethoxyphenyl)thieno[2,3-d]pyrimidine-6-carbonitrile

5-Methyl-4-[methyl(prop-2-ynyl)amino]-2-(3,4,5-trimethoxyphenyl)thieno[2,3-d]pyrimidine-6-carbonitrile

4-[(2-Hydroxyethyl)amino]-5-methyl-2-(3,4,5-trimethoxyphenyl)thieno[2,3-d]pyrimidine-6-carbonitrile

4-[(2-Methoxyethyl)amino]-5-methyl-2-(3,4,5-trimethoxyphenyl)thieno[2,3-d]pyrimidine-6-carbonitrile

4-{{2-(Dimethylamino)ethyl}amino}-5-methyl-2-(3,4,5-trimethoxyphenyl)thieno [2,3-d]pyrimidine-6-carbonitrile

5-Methyl-4-(3-methylpiperazin-1-yl)-2-(3,4,5-trimethoxyphenyl)thieno[2,3-d]pyrimidine-6-carbonitrile

4-(3,5-Dimethylpiperazin-1-yl)-5-methyl-2-(3,4,5-trimethoxyphenyl)thieno[2,3-d]pyrimidine-6-carbonitrile

4-(4-Acetyl)piperazin-1-yl)-5-methyl-2-(3,4,5-trimethoxyphenyl)thieno[2,3-d]pyrimidine-6-carbonitrile

4-[(2-Aminoethyl)(methyl)amino]-5-methyl-2-(3,4,5-trimethoxyphenyl)thieno[2,3-d]pyrimidine-6-carbonitrile

N-[6-Cyano-5-methyl-2-(3,4,5-trimethoxyphenyl)thieno[2,3-d]pyrimidin-4-yl]-beta-alanine

5-Methyl-4-(1H-pyrazol-1-yl)-2-(3,4,5-trimethoxyphenyl)thieno[2,3-d]pyrimidine-6-carbonitrile

4-(1H-Imidazol-1-yl)-5-methyl-2-(3,4,5-trimethoxyphenyl)thieno[2,3-d]pyrimidine-6-carbonitrile

5-Methyl-4-(2H-1,2,3-triazol-2-yl)-2-(3,4,5-trimethoxyphenyl)thieno[2,3-d]pyrimidine-6-carbonitrile

5-Methyl-4-(1H-1,2,4-triazol-1-yl)-2-(3,4,5-trimethoxyphenyl)thieno[2,3-d]pyrimidine-6-carbonitrile

2-(3,4-Dimethoxybenzyl)-5-methyl-4-morpholin-4-ylthieno[2,3-d]pyrimidine-6-carbonitrile

2-(3,4-Dimethoxybenzyl)-5-methyl-4-(4-methylpiperazin-1-yl)thieno[2,3-d]pyrimidine-6-carbonitrile

2-(3,4-Dimethoxybenzyl)-5-methyl-4-(methylamino)thieno[2,3-d]pyrimidine-6-carbonitrile

2-(3,4-Dimethoxybenzyl)-4-(ethylamino)-5-methylthieno[2,3-d]pyrimidine-6-carbonitrile

2-(3,4-Dimethoxybenzyl)-5-methyl-4-(propylamino)thieno[2,3-d]pyrimidine-6-carbonitrile

4-(Cyclopropylamino)-2-(3,4-dimethoxybenzyl)-5-methylthieno[2,3-d]pyrimidine-6-carbonitrile

4-(Cyclobutylamino)-2-(3,4-dimethoxybenzyl)-5-methylthieno[2,3-d]pyrimidine-6-carbonitrile

2-(3,4-Dimethoxybenzyl)-4-(dimethylamino)-5-methylthieno[2,3-d]pyrimidine-6-carbonitrile

2-(3,4-Dimethoxybenzyl)-4-[ethyl(methyl)amino]-5-methylthieno[2,3-d]pyrimidine-6-carbonitrile

4-(Diethylamino)-2-(3,4-dimethoxybenzyl)-5-methylthieno[2,3-d]pyrimidine-6-carbonitrile

4-[Allyl(methyl)amino]-2-(3,4-dimethoxybenzyl)-5-methylthieno[2,3-d]pyrimidine-6-carbonitrile

2-(3,4-Dimethoxybenzyl)-5-methyl-4-[methyl(prop-2-ynyl)amino]thieno[2,3-d]pyrimidine-6-carbonitrile

2-(3,4-Dimethoxybenzyl)-4-[(2-hydroxyethyl)amino]-5-methylthieno[2,3-d]pyrimidine-6-carbonitrile

2-(3,4-Dimethoxybenzyl)-4-[(2-hydroxyethyl)(methyl)amino]-5-methylthieno[2,3-d]pyrimidine-6-carbonitrile

2-(3,4-Dimethoxybenzyl)-4-[(2-methoxyethyl)amino]-5-methylthieno[2,3-d]pyrimidine-6-carbonitrile

4-[[2-(Dimethylamino)ethyl](methyl)amino]-5-methyl-2-(3,4,5-trimethoxyphenyl)thieno[2,3-d]pyrimidine-6-carbonitrile

5-Methyl-4-morpholin-4-yl-2-(3,4,5-trimethoxybenzyl)thieno[2,3-d]pyrimidine-6-carbonitrile

5-Methyl-4-(4-methylpiperazin-1-yl)-2-(3,4,5-trimethoxybenzyl)thieno[2,3-d]pyrimidine-6-carbonitrile

5-Methyl-4-(methylamino)-2-(3,4,5-trimethoxybenzyl)thieno[2,3-d]pyrimidine-6-carbonitrile

4-(Ethylamino)-5-methyl-2-(3,4,5-trimethoxybenzyl)thieno[2,3-d]pyrimidine-6-carbonitrile

5-Methyl-4-(propylamino)-2-(3,4,5-trimethoxybenzyl)thieno[2,3-d]pyrimidine-6-carbonitrile

4-(Isopropylamino)-5-methyl-2-(3,4,5-trimethoxybenzyl)thieno[2,3-d]pyrimidine-6-carbonitrile

4-(sec-Butylamino)-5-methyl-2-(3,4,5-trimethoxybenzyl)thieno[2,3-d]pyrimidine-6-carbonitrile

4-[(1-Ethylpropyl)amino]-5-methyl-2-(3,4,5-trimethoxybenzyl)thieno[2,3-d]pyrimidine-6-carbonitrile

4-(tert-Butylamino)-5-methyl-2-(3,4,5-trimethoxybenzyl)thieno[2,3-d]pyrimidine-6-carbonitrile

4-(Cyclopropylamino)-5-methyl-2-(3,4,5-trimethoxybenzyl)thieno[2,3-d]pyrimidine-6-carbonitrile

4-(Cyclobutylamino)-5-methyl-2-(3,4,5-trimethoxybenzyl)thieno[2,3-d]pyrimidine-6-carbonitrile

4-(Dimethylamino)-5-methyl-2-(3,4,5-trimethoxybenzyl)thieno[2,3-d]pyrimidine-6-carbonitrile

4-[Ethyl(methyl)amino]-5-methyl-2-(3,4,5-trimethoxybenzyl)thieno[2,3-d]pyrimidine-6-carbonitrile

4-(Diethylamino)-5-methyl-2-(3,4,5-trimethoxybenzyl)thieno[2,3-d]pyrimidine-6-carbonitrile

4-[Allyl(methyl)amino]-5-methyl-2-(3,4,5-trimethoxybenzyl)thieno[2,3-d]pyrimidine-6-carbonitrile

5-Methyl-4-[methyl(prop-2-ynyl)amino]-2-(3,4,5-trimethoxybenzyl)thieno[2,3-d]pyrimidine-6-carbonitrile

4-[(2-Hydroxyethyl)amino]-5-methyl-2-(3,4,5-trimethoxybenzyl)thieno[2,3-d]pyrimidine-6-carbonitrile

4-[(2-Methoxyethyl)amino]-5-methyl-2-(3,4,5-trimethoxybenzyl)thieno[2,3-d]pyrimidine-6-carbonitrile

4-[(2-Hydroxyethyl)(methyl)amino]-5-methyl-2-(3,4,5-trimethoxybenzyl)thieno[2,3-d]pyrimidine-6-carbonitrile

5-methyl-4-(4-methylpiperazin-1-yl)-2-(2-phenylethyl)thieno[2,3-d]pyrimidine-6-carbonitrile

4-(Cyclobutylamino)-5-methyl-2-(2-phenylethyl)thieno[2,3-d]pyrimidine-6-carbonitrile

4-(Diethylamino)-5-methyl-2-(2-phenylethyl)thieno[2,3-d]pyrimidine-6-carbonitrile

5-Methyl-4-(4-methylpiperazin-1-yl)-2-(3-phenylpropyl)thieno[2,3-d]pyrimidine-6-carbonitrile

4-(Diethylamino)-5-methyl-2-(3-phenylpropyl)thieno[2,3-d]pyrimidine-6-carbonitrile

2-(3,5-Dimethoxy-phenyl)-4-[(2-hydroxy-ethyl)-methyl-amino]-5-methyl-thieno[2,3-d]pyrimidine-6-carbonitrile

2-(3,5-Dimethoxy-phenyl)-5-methyl-4-morpholin-4-ylthieno[2,3-d]pyrimidine-6-carbonitrile

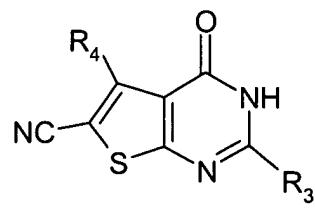
2-(3,5-Dimethoxyphenyl)-4-(ethylamino)-5-methylthieno[2,3-d]pyrimidine-6-carbonitrile

4-(Isobutylamino)-5-methyl-2-(3,4,5-trimethoxybenzyl)thieno[2,3-d]pyrimidine-6-carbonitrile

and pharmaceutically acceptable salts thereof.

12) (Previously Presented) A process for the preparation of a compound as claimed in claim 1, comprising:

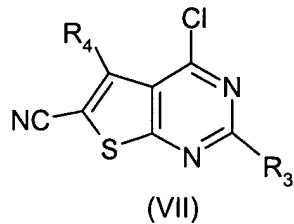
(a) reacting the thienopyrimidinone of formula (VI)



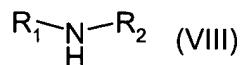
with a chlorinating agent

(b) removing after cooling the excess of chlorinating agent

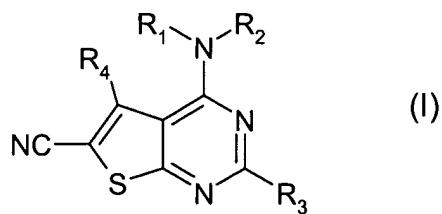
(c) optionally isolating the chlorothienopyrimidine of formula (VII)



(d) reacting the chlorothienopyrimidine of formula (VII) with an amine (VIII)



in a closed atmosphere at temperatures ranging from 40°C to 120 °C to produce a compound of formula (I):



and

(e) optionally preparing a pharmaceutically acceptable salt from a compound of formula (I).

13) (Cancelled)

14) (Previously Presented) A pharmaceutical composition comprising at least one compound according to claim 1 and a pharmaceutically acceptable diluent or carrier.

15) (Cancelled)

16) (Cancelled)

17) (Cancelled)

18) (Cancelled)

19) (Currently Amended) A method according to claim 18, for treating a subject afflicted with a pathological condition or disease susceptible to amelioration by inhibition of PDE7 comprising administering to the said subject an effective amount of at least one compound according to claim 1, wherein the pathological condition or disease is chosen from asthma, atopic dermatitis, chronic obstructive pulmonary disease, Crohn's disease, type I and type II diabetes, lymphoid leukemia and other forms of cancer, multiple sclerosis, allograft rejection after organ transplantation, psoriasis, rheumatoid arthritis, and ulcerative colitis.

20) (Withdrawn) A combination product comprising:

- a) at least one compound according to claim 1; and
- b) at least one compound chosen from (a) PDE4 inhibitors, (b) A_{2A} adenosine receptor antagonists, (c) NSAIDs, (d) COX-2 inhibitors, (e) TNF- α inhibitors and (f) steroids;

for simultaneous, separate or sequential use.

21) (Withdrawn) A method for the treatment or prevention of T cell mediated immune diseases and diseases of the airways in a subject comprising administering to the said subject an effective amount of at least one compound according to claim 1.

22) (Withdrawn) A composition comprising:

- a) at least one compound according to claim 1; and

b) at least one compound chosen from (a) PDE4 inhibitors, (b) A_{2A} adenosine receptor antagonists, (c) NSAIDs, (d) COX-2 inhibitors, (e) TNF- α inhibitors and (f) steroids.